

## **RAW SEQUENCE LISTING**

**The Biotechnology Systems Branch of the Scientific and Technical Information Center (STIC) no errors detected.**

Application Serial Number: 09/857,581C  
Source: 1FwJ6  
Date Processed by STIC: 6/29/06

***ENTERED***

## **CRF Errors Edited by the STIC Systems Branch**

Serial Number: 09/857,58/C

CRF Edit Date: 6/27/06  
Edited by: h

— Realigned nucleic acid/amino acid numbers/text in cases where the sequence text "wrapped" to the next line

— Corrected the SEQ ID NO. Sequence numbers edited were:

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— Inserted or corrected a nucleic number at the end of a nucleic line. SEQ ID NO's edited:

---

— Deleted: \_\_\_\_\_ invalid beginning/end-of-file text ; \_\_\_\_\_ page numbers

— Inserted mandatory headings/numeric identifiers, specifically:

---

— Moved responses to same line as heading/numeric identifier, specifically:

---

— Other:

---

---

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IFW16

## RAW SEQUENCE LISTING

PATENT APPLICATION: US/09/857,581C

DATE: 06/27/2006

TIME: 16:52:46

Input Set : A:\PTO.AMC.txt

Output Set: N:\CRF4\06272006\I857581C.raw

3 <110> APPLICANT: Fader, Gary M.  
 4       Jung, Woosuk  
 5       Brian, McGonigle  
 6       Odell, Joan T.  
 7       Yu, Xiaodan  
 9 <120> TITLE OF INVENTION: Nucleic Acid Fragments Encoding Isoflavone Synthase  
 11 <130> FILE REFERENCE: BB1339RCE  
 13 <140> CURRENT APPLICATION NUMBER: 09/857,581C  
**C--> 14 <141> CURRENT FILING DATE: 2001-06-05**  
 16 <150> PRIOR APPLICATION NUMBER: PCT/US00/01772  
 17 <151> PRIOR FILING DATE: 2000-01-26  
 19 <150> PRIOR APPLICATION NUMBER: 60/117,769  
 20 <151> PRIOR FILING DATE: 1999-01-27  
 22 <150> PRIOR APPLICATION NUMBER: 60/144,783  
 23 <151> PRIOR FILING DATE: 1990-07-20  
 25 <150> PRIOR APPLICATION NUMBER: 60/156,094  
 26 <151> PRIOR FILING DATE: 1999-09-24  
 28 <160> NUMBER OF SEQ ID NOS: 66  
 30 <170> SOFTWARE: PatentIn version 3.3  
 32 <210> SEQ ID NO: 1  
 33 <211> LENGTH: 1756  
 34 <212> TYPE: DNA  
 35 <213> ORGANISM: Glycine max  
 37 <400> SEQUENCE: 1  
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 39 ttacatgt tgctgaaact tgcaattgg tttttgtgt tagctttgtt tctgcacttg      120  
 40 cgtccccacac caagtcaaa atcaaaaagca ctgcgccacc tcccaaaaccc tccaagccca      180  
 41 aagectcgtc ttcccttcat tgcccacctt cacctttaaa aagataaaact tctccactat      240  
 42 gcactcatcg atctctccaa aaagcatggc cccttattct ctctctcctt cggctccatg      300  
 43 ccaaccgtcg ttgcctccac ccctgagttt ttcagaatct tccctccaaac ccacgaggca      360  
 44 acttccttca acacaaggaa ccaaaccctt gccataagac gcctcaactt cgacaactct      420  
 45 gtggccatgg ttccattcg accttactgg aagttcgtga ggaagctcat catgaacgac      480  
 46 cttctcaacg ccaccaccgt caacaagctc aggcctttga gaccccaaca gatccgcaag      540  
 47 ttcccttaggg ttatggccca aagcgcagag gcccagaagc cccttgcacgt caccgaggag      600  
 48 cttctcaaattt ggaccaacag caccatctcc atgatgatgc tcggcgagac tgaggagatc      660  
 49 agagacatcg ctcgcgaggt tcttaagatc ttccggcaat acagcctcac tgacttcatc      720  
 50 tggcccttga agtatctaa ggttggaaag tatgagaaga ggattgtatca catttgaac      780  
 51 aagttcgacc ctgtcgatca aagggtcata aagaagcgcc gtgagatcgt cagaaggaga      840  
 52 aagaacggag aagttgtga gggcgaggcc agcggcgatc tcctcgacac tttgttgaa      900  
 53 ttgcgtgagg acgagaccat ggagatcaaa attaccaagg agcaaatcaa gggccttgg      960  
 54 gtgcactttt tctctgcagg gacagattcc acagcggtgg caacagatgt ggcattggca      1020  
 55 gagctcatca acaatcccag ggttgtgcaa aaggctcgatc aggaggtcta cagttgtg      1080  
 56 ggcaaagata gactcgatca cgaagttgac actcaaaacc ttccattacat tagggccatt      1140

**RAW SEQUENCE LISTING**  
**PATENT APPLICATION: US/09/857,581C**

**DATE: 06/27/2006**  
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**Input Set : A:\PTO.AMC.txt**  
**Output Set: N:\CRF4\06272006\I857581C.raw**

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59	caagtaggaa	gggacccaa	atactggac	agaccatcg	aattccgtcc	cgagaggttc	1320									
60	ttagaaactg	gtgctgaagg	ggaagcaggg	cctcttgatc	ttaggggcca	gcatttccaa	1380									
61	ctcctccat	ttgggtctgg	gaggagaatg	tgccctggt	tcaatttggc	tacttcagga	1440									
62	atggcaacac	ttcttgatc	tcttatccaa	tgcttgacc	tgcaagtgt	gggcctcaa	1500									
63	ggacaaatat	tgaaaagggtga	tgatgccccaa	gttagcatgg	aagagagagc	tggcctcaca	1560									
64	gttccaagggg	cacatagtct	cgtttgttt	ccacttgcaa	ggatcggcgt	tgcatctaaa	1620									
65	ctccttctt	aattaagata	atcatcatat	acaatagtag	tgtcttgcca	tcgcagttgc	1680									
66	tttttatgt	ttcataatca	tcattcaat	aagggtgtac	tggtaactaa	tcaagtaatt	1740									
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79							20		25		30					
81	Pro	Asn	Pro	Pro	Ser	Pro	Lys	Pro	Arg	Leu	Pro	Phe	Ile	Gly	His	Leu
82							35		40		45					
84	His	Leu	Leu	Lys	Asp	Lys	Leu	Leu	His	Tyr	Ala	Leu	Ile	Asp	Leu	Ser
85							50		55		60					
87	Lys	Lys	His	Gly	Pro	Leu	Phe	Ser	Leu	Ser	Phe	Gly	Ser	Met	Pro	Thr
88							65		70		75		80			
90	Val	Val	Ala	Ser	Thr	Pro	Glu	Leu	Phe	Lys	Leu	Phe	Leu	Gln	Thr	His
91							85		90		95					
93	Glu	Ala	Thr	Ser	Phe	Asn	Thr	Arg	Phe	Gln	Thr	Ser	Ala	Ile	Arg	Arg
94							100		105		110					
96	Leu	Thr	Tyr	Asp	Asn	Ser	Val	Ala	Met	Val	Pro	Phe	Gly	Pro	Tyr	Trp
97							115		120		125					
99	Lys	Phe	Val	Arg	Lys	Leu	Ile	Met	Asn	Asp	Leu	Leu	Asn	Ala	Thr	Thr
100							130		135		140					
102	Val	Asn	Lys	Leu	Arg	Pro	Leu	Arg	Thr	Gln	Gln	Ile	Arg	Lys	Phe	Leu
103							145		150		155		160			
105	Arg	Val	Met	Ala	Gln	Ser	Ala	Glu	Ala	Gln	Lys	Pro	Leu	Asp	Val	Thr
106							165		170		175					
108	Glu	Glu	Leu	Leu	Lys	Trp	Thr	Asn	Ser	Thr	Ile	Ser	Met	Met	Met	Leu
109							180		185		190					
111	Gly	Glu	Ala	Glu	Glu	Ile	Arg	Asp	Ile	Ala	Arg	Glu	Val	Leu	Lys	Ile
112							195		200		205					
114	Phe	Gly	Glu	Tyr	Ser	Leu	Thr	Asp	Phe	Ile	Trp	Pro	Leu	Lys	Tyr	Leu
115							210		215		220					
117	Lys	Val	Gly	Lys	Tyr	Glu	Lys	Arg	Ile	Asp	Asp	Ile	Leu	Asn	Lys	Phe
118							225		230		235		240			
120	Asp	Pro	Val	Val	Glu	Arg	Val	Ile	Lys	Lys	Arg	Arg	Glu	Ile	Val	Arg
121							245		250		255					
123	Arg	Arg	Lys	Asn	Gly	Glu	Val	Val	Glu	Gly	Glu	Ala	Ser	Gly	Val	Phe

RAW SEQUENCE LISTING  
PATENT APPLICATION: US/09/857,581C

DATE: 06/27/2006  
TIME: 16:52:46

Input Set : A:\PTO.AMC.txt  
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124	260	265	270	
126	Leu Asp Thr	Leu Leu Glu Phe Ala	Glu Asp Glu Thr Met Glu Ile Lys	
127	275	280	285	
129	Ile Thr Lys Glu Gln Ile Lys Gly	Leu Val Val Asp Phe Phe Ser Ala		
130	290	295	300	
132	Gly Thr Asp Ser Thr Ala Val Ala	Thr Glu Trp Ala Leu Ala Glu Leu		
133	305	310	315	320
135	Ile Asn Asn Pro Arg Val Leu Gln Lys Ala Arg Glu Glu Val Tyr Ser			
136	325	330	335	
138	Val Val Gly Lys Asp Arg Leu Val Asp Glu Val Asp Thr Gln Asn Leu			
139	340	345	350	
141	Pro Tyr Ile Arg Ala Ile Val Lys Glu Thr Phe Arg Met His Pro Pro			
142	355	360	365	
144	Leu Pro Val Val Lys Arg Lys Cys Thr Glu Glu Cys Glu Ile Asn Gly			
145	370	375	380	
147	Tyr Val Ile Pro Glu Gly Ala Leu Val Leu Phe Asn Val Trp Gln Val			
148	385	390	395	400
150	Gly Arg Asp Pro Lys Tyr Trp Asp Arg Pro Ser Glu Phe Arg Pro Glu			
151	405	410	415	
153	Arg Phe Leu Glu Thr Gly Ala Glu Gly Glu Ala Gly Pro Leu Asp Leu			
154	420	425	430	
156	Arg Gly Gln His Phe Gln Leu Leu Pro Phe Gly Ser Gly Arg Arg Met			
157	435	440	445	
159	Cys Pro Gly Val Asn Leu Ala Thr Ser Gly Met Ala Thr Leu Leu Ala			
160	450	455	460	
162	Ser Leu Ile Gln Cys Phe Asp Leu Gln Val Leu Gly Pro Gln Gly Gln			
163	465	470	475	480
165	Ile Leu Lys Gly Asp Asp Ala Lys Val Ser Met Glu Glu Arg Ala Gly			
166	485	490	495	
168	Leu Thr Val Pro Arg Ala His Ser Leu Val Cys Val Pro Leu Ala Arg			
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175	<211> LENGTH: 27			
176	<212> TYPE: DNA			
177	<213> ORGANISM: Artificial Sequence			
179	<220> FEATURE:			
180	<223> OTHER INFORMATION: Oligonucleotide primer used in construction of WHT1			
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183	cgggatccat gcaaccggaa accgtcg		27	
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187	<212> TYPE: DNA			
188	<213> ORGANISM: Artificial Sequence			
190	<220> FEATURE:			
191	<223> OTHER INFORMATION: Oligonucleotide primer used in construction of yeast strain			
WHT1				
193	<400> SEQUENCE: 4			
194	ccggaattct caccaaacat cacggaggta tc		32	

## RAW SEQUENCE LISTING

PATENT APPLICATION: US/09/857,581C

DATE: 06/27/2006

TIME: 16:52:46

Input Set : A:\PTO.AMC.txt

Output Set: N:\CRF4\06272006\I857581C.raw

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 199 <213> ORGANISM: Artificial Sequence  
 201 <220> FEATURE:  
 202 <223> OTHER INFORMATION: Oligonucleotide primer  
 204 <400> SEQUENCE: 5  
 205 tcaaggagaa aaaacccgg atccatgtt ctggaacttg cacttgg 47  
 207 <210> SEQ ID NO: 6  
 208 <211> LENGTH: 35  
 209 <212> TYPE: DNA  
 210 <213> ORGANISM: Artificial Sequence  
 212 <220> FEATURE:  
 213 <223> OTHER INFORMATION: Oligonucleotide primer  
 215 <400> SEQUENCE: 6  
 216 gcccagtgaa ttgtaatacg actcactata gggcg 35  
 218 <210> SEQ ID NO: 7  
 219 <211> LENGTH: 24  
 220 <212> TYPE: DNA  
 221 <213> ORGANISM: Artificial Sequence  
 223 <220> FEATURE:  
 224 <223> OTHER INFORMATION: Oligonucleotide primer  
 226 <400> SEQUENCE: 7  
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 230 <211> LENGTH: 27  
 231 <212> TYPE: DNA  
 232 <213> ORGANISM: Artificial Sequence  
 234 <220> FEATURE:  
 235 <223> OTHER INFORMATION: Oligonucleotide primer  
 237 <400> SEQUENCE: 8  
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 241 <211> LENGTH: 1824  
 242 <212> TYPE: DNA  
 243 <213> ORGANISM: Glycine max  
 245 <400> SEQUENCE: 9  
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 247 ttgaacttgc acttggtttta ttgggtttgg ctctgtttct gcacttgcgt cccacaccca 120  
 248 ctgcaaaatc aaaagactt cgccatctcc caaacccacc aagccccaaag cctcgtcttc 180  
 249 ccttcatagg acacccat ctcttaaaag acaaacttct ccactacgca ctcatcgacc 240  
 250 tctccaaaaaa acatggtccc ttattctctc tctactttgg ctccatgcc accgttgg 300  
 251 cctccacacc agaattgttc aagcttcc tccaaacgca cgaggcaact tccttcaaca 360  
 252 caaggttcca aacccatgcc ataagacgcc tcaccatga tagctcagtg gccatggttc 420  
 253 ctttcggacc ttactggaag ttcgtgagga agctcatcat gaacgaccctt cccaaacgcca 480  
 254 ccactgtaaa caagtggagg ctttgagga cccaaacagac ccgcaaggcc ctttagggta 540  
 255 tggcccaagg cgcagaggca cagaagcccc ttgacttgac cgaggagttt ctgaaatgga 600  
 256 ccaacacgac catctccatg atgatgctcg gcgaggctga ggagatcaga gacatcgctc 660  
 257 gcgaggttct taagatcttt ggcgaataca gcctcactga cttcatctgg ccattgaagg 720

RAW SEQUENCE LISTING  
PATENT APPLICATION: US/09/857,581C

DATE: 06/27/2006  
TIME: 16:52:46

Input Set : A:\PTO.AMC.txt  
Output Set: N:\CRF4\06272006\I857581C.raw

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261	agaccatgga	gatcaaatac	accaaggacc	acatcgaggg	tcttgttgc	gacttttct	960										
262	cggcaggaac	agactccaca	gcgggtggcaa	cagagtggc	attggcagaa	ctcatcaaca	1020										
263	atcctaaggat	gttggaaaag	gctcgtgagg	aggtctacag	tgttgtggaa	aaggacagac	1080										
264	tttgtggacga	agttgacact	caaaaccttc	cttacattag	agcaatcgt	aaggagacat	1140										
265	tccgcattca	ccgcactc	ccagtggtca	aaagaaaatg	cacagaagag	tgtgagatta	1200										
266	atggatatgt	gatcccagag	ggagcattga	ttctttcaa	tgtatggcaa	gtaggaagag	1260										
267	accccaaata	ctggacaga	ccatcgag	tccgtctga	gaggttctta	gagacagggg	1320										
268	ctgaagggga	agcagggcct	cttgatctt	ggggacaaca	tttcaactt	ctcccatgg	1380										
269	ggtctggag	gagaatgtgc	cctggagtca	atctggctac	ttcgggaatg	gcaacacttc	1440										
270	ttgcattct	tattcagtgc	ttcgacttgc	aagtgcgtgg	tccacaagga	cagatattga	1500										
271	agggtggta	cgc当地aaat	agcatgaaag	agagagccg	cctcactgtt	ccaagggcac	1560										
272	atagtcttgc	ctgtttcca	cttgc当地aa	tcggcgttgc	atctaaactc	ctttcttaat	1620										
273	taagatcatc	atcatatata	atatttactt	tttgc当地aa	gataatcatc	atttcaataa	1680										
274	ggtctcggttc	atctactttt	tatgaaatgtat	ataagccctt	ccatgcacat	tgtatcatct	1740										
275	cccatttgtc	ttcggttgc	acctaaggca	atctttttt	ttttagaaatc	acatcatcct	1800										
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283	<400>	SEQUENCE:	10														
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287	His	Leu	Arg	Pro	Thr	Pro	Thr	Ala	Lys	Ser	Lys	Ala	Leu	Arg	His	Leu	
288				20			25					30					
290	Pro	Asn	Pro	Pro	Ser	Pro	Lys	Pro	Arg	Leu	Pro	Phe	Ile	Gly	His	Leu	
291				35			40					45					
293	His	Leu	Leu	Lys	Asp	Lys	Leu	Leu	His	Tyr	Ala	Leu	Ile	Asp	Leu	Ser	
294				50			55					60					
296	Lys	Lys	His	Gly	Pro	Leu	Phe	Ser	Leu	Tyr	Phe	Gly	Ser	Met	Pro	Thr	
297	65			70			75					80					
299	Val	Val	Ala	Ser	Thr	Pro	Glu	Leu	Phe	Lys	Leu	Phe	Leu	Gln	Thr	His	
300				85			90					95					
302	Glu	Ala	Thr	Ser	Phe	Asn	Thr	Arg	Phe	Gln	Thr	Ser	Ala	Ile	Arg	Arg	
303				100			105					110					
305	Leu	Thr	Tyr	Asp	Ser	Ser	Val	Ala	Met	Val	Pro	Phe	Gly	Pro	Tyr	Trp	
306				115			120					125					
308	Lys	Phe	Val	Arg	Lys	Leu	Ile	Met	Asn	Asp	Leu	Pro	Asn	Ala	Thr	Thr	
309				130			135					140					
311	Val	Asn	Lys	Leu	Arg	Pro	Leu	Arg	Thr	Gln	Gln	Thr	Arg	Lys	Phe	Leu	
312	145			145			150					155			160		
314	Arg	Val	Met	Ala	Gln	Gly	Ala	Glu	Ala	Gln	Lys	Pro	Leu	Asp	Leu	Thr	
315				165			170					175					
317	Glu	Glu	Leu	Leu	Lys	Trp	Thr	Asn	Ser	Thr	Ile	Ser	Met	Met	Met	Leu	
318				180			185					190					
320	Gly	Glu	Ala	Glu	Glu	Ile	Arg	Asp	Ile	Ala	Arg	Glu	Val	Leu	Lys	Ile	

RAW SEQUENCE LISTING ERROR SUMMARY                    DATE: 06/27/2006  
PATENT APPLICATION: US/09/857,581C                    TIME: 16:52:48

Input Set : A:\PTO.AMC.txt  
Output Set: N:\CRF4\06272006\I857581C.raw

Please Note:

Use of n and/or Xaa have been detected in the Sequence Listing. Please review the Sequence Listing to ensure that a corresponding explanation is presented in the <220> to <223> fields of each sequence which presents at least one n or Xaa.

Seq#:66; Xaa Pos. 10,16,23,25,39,48,60,73,74,95,96,102,110,112,117,118,121  
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**VERIFICATION SUMMARY**

PATENT APPLICATION: US/09/857,581C

DATE: 06/27/2006

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Input Set : A:\PTO.AMC.txt

Output Set: N:\CRF4\06272006\I857581C.raw

L:14 M:271 C: Current Filing Date differs, Replaced Current Filing Date

L:3460 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:66 after pos.:0

M:341 Repeated in SeqNo=66

## **Raw Sequence Listing before editing (for reference only)**



IFW16

## RAW SEQUENCE LISTING

PATENT APPLICATION: US/09/857,581C

DATE: 06/27/2006

TIME: 16:15:25

Input Set : A:\corrected seq 1st 6-19-06.txt

Output Set: N:\CRF4\06272006\I857581C.raw

3 <110> APPLICANT: Fader, Gary M.  
 4       Jung, Woosuk  
 5       Brian, McGonigle  
 6       Odell, Joan T.  
 7       Yu, Xiaodan  
 9 <120> TITLE OF INVENTION: Nucleic Acid Fragments Encoding Isoflavone Synthase  
 11 <130> FILE REFERENCE: BB1339RCE  
 13 <140> CURRENT APPLICATION NUMBER: 09/857,581C  
**C--> 14 <141> CURRENT FILING DATE: 2001-06-05**  
 16 <150> PRIOR APPLICATION NUMBER: PCT/US00/01,772  
 17 <151> PRIOR FILING DATE: 2000-01-26  
 19 <150> PRIOR APPLICATION NUMBER: 60/117,769  
 20 <151> PRIOR FILING DATE: 1999-01-27  
 22 <150> PRIOR APPLICATION NUMBER: 60/144,783  
 23 <151> PRIOR FILING DATE: 1990-07-20  
 25 <150> PRIOR APPLICATION NUMBER: 60/156,094  
 26 <151> PRIOR FILING DATE: 1999-09-24  
 28 <160> NUMBER OF SEQ ID NOS: 66  
 30 <170> SOFTWARE: PatentIn version 3.3

## ERRORED SEQUENCES

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 3116 <223> OTHER INFORMATION: Consensus sequence  
 3118 <220> FEATURE:  
 3119 <221> NAME/KEY: MISC\_FEATURE /  
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 3121 <223> OTHER INFORMATION: Xaa= Phe or Leu  
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 3130 <222> LOCATION: (23)..(23) /  
 3131 <223> OTHER INFORMATION: Xaa=Ser or Thr  
 3133 <220> FEATURE:  
 3134 <221> NAME/KEY: MISC\_FEATURE /

P.8  
*Does Not Comply  
 Corrected Diskette Needed*

## RAW SEQUENCE LISTING

PATENT APPLICATION: US/09/857,581C

DATE: 06/27/2006

TIME: 16:15:26

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Output Set: N:\CRF4\06272006\I857581C.raw

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3141 <223> OTHER INFORMATION: Xaa=Lys or Arg  
3143 <220> FEATURE:  
3144 <221> NAME/KEY: MISC\_FEATURE  
3145 <222> LOCATION: (48)..(48) ✓  
3146 <223> OTHER INFORMATION: Xaa=Pro or Leu  
3148 <220> FEATURE:  
3149 <221> NAME/KEY: MISC\_FEATURE ✓  
3150 <222> LOCATION: (60)..(60)  
3151 <223> OTHER INFORMATION: Xaa=Pro or Leu  
3153 <220> FEATURE:  
3154 <221> NAME/KEY: MISC\_FEATURE  
3155 <222> LOCATION: (73)..(73) ✓  
3156 <223> OTHER INFORMATION: Xaa=Leu or His  
3158 <220> FEATURE:  
3159 <221> NAME/KEY: MISC\_FEATURE  
3160 <222> LOCATION: (74)..(74) ✓  
3161 <223> OTHER INFORMATION: Xaa=Ser or Tyr  
3163 <220> FEATURE:  
3164 <221> NAME/KEY: MISC\_FEATURE ✓  
3165 <222> LOCATION: (95)..(95)  
3166 <223> OTHER INFORMATION: Xaa=Ala or Thr  
3168 <220> FEATURE:  
3169 <221> NAME/KEY: MISC\_FEATURE  
3170 <222> LOCATION: (96)..(96) ✓  
3171 <223> OTHER INFORMATION: Xaa=Asn or His  
3173 <220> FEATURE:  
3174 <221> NAME/KEY: MISC\_FEATURE ✓  
3175 <222> LOCATION: (102)..(102)  
3176 <223> OTHER INFORMATION: Xaa=Asn or Ser  
3178 <220> FEATURE:  
3179 <221> NAME/KEY: MISC\_FEATURE ✓  
3180 <222> LOCATION: (110)..(110)  
3181 <223> OTHER INFORMATION: Xaa=Ile, Val, or Thr  
3183 <220> FEATURE:  
3184 <221> NAME/KEY: MISC\_FEATURE ✓  
3185 <222> LOCATION: (112)..(112)  
3186 <223> OTHER INFORMATION: Xaa=Arg or His  
3188 <220> FEATURE:  
3189 <221> NAME/KEY: MISC\_FEATURE  
3190 <222> LOCATION: (117)..(117) ✓  
3191 <223> OTHER INFORMATION: Xaa=Asn or Ser  
3193 <220> FEATURE:  
3194 <221> NAME/KEY: MISC\_FEATURE  
3195 <222> LOCATION: (118)..(118)

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3196 <223> OTHER INFORMATION: Xaa=Ser or Leu  
3198 <220> FEATURE:  
3199 <221> NAME/KEY: MISC\_FEATURE /  
3200 <222> LOCATION: (121)..(121)  
3201 <223> OTHER INFORMATION: Xaa=Met or Arg  
3203 <220> FEATURE:  
3204 <221> NAME/KEY: MISC\_FEATURE /  
3205 <222> LOCATION: (122)..(122)  
3206 <223> OTHER INFORMATION: Xaa=Ala or Val  
3208 <220> FEATURE:  
3209 <221> NAME/KEY: MISC\_FEATURE /  
3210 <222> LOCATION: (124)..(124)  
3211 <223> OTHER INFORMATION: Xaa=Phe or Ile  
3213 <220> FEATURE:  
3214 <221> NAME/KEY: MISC\_FEATURE /  
3215 <222> LOCATION: (129)..(129)  
3216 <223> OTHER INFORMATION: Xaa=Lys or Arg  
3218 <220> FEATURE:  
3219 <221> NAME/KEY: MISC\_FEATURE /  
3220 <222> LOCATION: (147)..(147)  
3221 <223> OTHER INFORMATION: Xaa=Lys or Glu  
3223 <220> FEATURE:  
3224 <221> NAME/KEY: MISC\_FEATURE /  
3225 <222> LOCATION: (159)..(159)  
3226 <223> OTHER INFORMATION: Xaa=Leu or Phe  
3228 <220> FEATURE:  
3229 <221> NAME/KEY: MISC\_FEATURE /  
3230 <222> LOCATION: (162)..(162)  
3231 <223> OTHER INFORMATION: Xaa=Ala or Val  
3233 <220> FEATURE:  
3234 <221> NAME/KEY: MISC\_FEATURE /  
3235 <222> LOCATION: (166)..(166)  
3236 <223> OTHER INFORMATION: Xaa=Ser or Gly  
3238 <220> FEATURE:  
3239 <221> NAME/KEY: MISC\_FEATURE / /  
3240 <222> LOCATION: (170)..(170)  
3241 <223> OTHER INFORMATION: Xaa=Gln or Arg  
3243 <220> FEATURE:  
3244 <221> NAME/KEY: MISC\_FEATURE /  
3245 <222> LOCATION: (175)..(175)  
3246 <223> OTHER INFORMATION: Xaa=Val or Leu  
3248 <220> FEATURE:  
3249 <221> NAME/KEY: MISC\_FEATURE /  
3250 <222> LOCATION: (183)..(183)  
3251 <223> OTHER INFORMATION: Xaa=Ala or Thr  
3253 <220> FEATURE:  
3254 <221> NAME/KEY: MISC\_FEATURE /  
3255 <222> LOCATION: (187)..(187)  
3256 <223> OTHER INFORMATION: Xaa=Thr or Ile

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3258 <220> FEATURE:  
3259 <221> NAME/KEY: MISC\_FEATURE  
3260 <222> LOCATION: (191)..(191)  
3261 <223> OTHER INFORMATION: Xaa=Met or Val  
3263 <220> FEATURE:  
3264 <221> NAME/KEY: MISC\_FEATURE  
3265 <222> LOCATION: (209)..(209)  
3266 <223> OTHER INFORMATION: Xaa=Phe or Tyr  
3268 <220> FEATURE:  
3269 <221> NAME/KEY: MISC\_FEATURE  
3270 <222> LOCATION: (219)..(219)  
3271 <223> OTHER INFORMATION: Xaa=Arg or Trp  
3273 <220> FEATURE:  
3274 <221> NAME/KEY: MISC\_FEATURE  
3275 <222> LOCATION: (223)..(223)  
3276 <223> OTHER INFORMATION: Xaa=Tyr or His  
3278 <220> FEATURE:  
3279 <221> NAME/KEY: MISC\_FEATURE  
3280 <222> LOCATION: (253)..(253)  
3281 <223> OTHER INFORMATION: Xaa=Gly or Glu  
3283 <220> FEATURE:  
3284 <221> NAME/KEY: MISC\_FEATURE  
3285 <222> LOCATION: (259)..(259)  
3286 <223> OTHER INFORMATION: Xaa=Lys or Glu  
3288 <220> FEATURE:  
3289 <221> NAME/KEY: MISC\_FEATURE  
3290 <222> LOCATION: (263)..(263)  
3291 <223> OTHER INFORMATION: Xaa=Val or Asp  
3293 <220> FEATURE:  
3294 <221> NAME/KEY: MISC\_FEATURE  
3295 <222> LOCATION: (264)..(264)  
3296 <223> OTHER INFORMATION: Xaa=Val, Asp, or Ile  
3298 <220> FEATURE:  
3299 <221> NAME/KEY: MISC\_FEATURE  
3300 <222> LOCATION: (268)..(268)  
3301 <223> OTHER INFORMATION: Xaa=Ala or Val  
3303 <220> FEATURE:  
3304 <221> NAME/KEY: MISC\_FEATURE  
3305 <222> LOCATION: (272)..(272)  
3306 <223> OTHER INFORMATION: Xaa=Phe or Leu  
3308 <220> FEATURE:  
3309 <221> NAME/KEY: MISC\_FEATURE  
3310 <222> LOCATION: (285)..(285)  
3311 <223> OTHER INFORMATION: Xaa=Thr or Met  
3313 <220> FEATURE:  
3314 <221> NAME/KEY: MISC\_FEATURE  
3315 <222> LOCATION: (292)..(292)  
3316 <223> OTHER INFORMATION: Xaa=ANY AMINO ACID  
3318 <220> FEATURE:

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3319 <221> NAME/KEY: MISC\_FEATURE  
3320 <222> LOCATION: (293)..(293)  
3321 <223> OTHER INFORMATION: Xaa=ANY AMINO ACID  
3323 <220> FEATURE:  
3324 <221> NAME/KEY: MISC\_FEATURE  
3325 <222> LOCATION: (294)..(294)  
3326 <223> OTHER INFORMATION: Xaa=Thr or Ile  
3328 <220> FEATURE:  
3329 <221> NAME/KEY: MISC\_FEATURE  
3330 <222> LOCATION: (301)..(301)  
3331 <223> OTHER INFORMATION: Xaa=Phe or Leu  
3333 <220> FEATURE:  
3334 <221> NAME/KEY: MISC\_FEATURE  
3335 <222> LOCATION: (306)..(306)  
3336 <223> OTHER INFORMATION: Xaa=Thr or Ile  
3338 <220> FEATURE:  
3339 <221> NAME/KEY: MISC\_FEATURE  
3340 <222> LOCATION: (311)..(311)  
3341 <223> OTHER INFORMATION: Xaa=Val or Glu  
3343 <220> FEATURE:  
3344 <221> NAME/KEY: MISC\_FEATURE  
3345 <222> LOCATION: (312)..(312)  
3346 <223> OTHER INFORMATION: Xaa=Val or Ala  
3348 <220> FEATURE:  
3349 <221> NAME/KEY: MISC\_FEATURE  
3350 <222> LOCATION: (325)..(325)  
3351 <223> OTHER INFORMATION: Xaa=Arg or Lys  
3353 <220> FEATURE:  
3354 <221> NAME/KEY: MISC\_FEATURE  
3355 <222> LOCATION: (328)..(328)  
3356 <223> OTHER INFORMATION: Xaa=Gln or Glu  
3358 <220> FEATURE:  
3359 <221> NAME/KEY: MISC\_FEATURE  
3360 <222> LOCATION: (329)..(329)  
3361 <223> OTHER INFORMATION: Xaa=ANY AMINO ACID  
3363 <220> FEATURE:  
3364 <221> NAME/KEY: MISC\_FEATURE  
3365 <222> LOCATION: (334)..(334)  
3366 <223> OTHER INFORMATION: Xaa=Val or Ala  
3368 <220> FEATURE:  
3369 <221> NAME/KEY: MISC\_FEATURE  
3370 <222> LOCATION: (342)..(342)  
3371 <223> OTHER INFORMATION: Xaa=Arg or Ile  
3373 <220> FEATURE:  
3374 <221> NAME/KEY: MISC\_FEATURE  
3375 <222> LOCATION: (377)..(377)  
3376 <223> OTHER INFORMATION: Xaa=Thr or Ile  
3378 <220> FEATURE:  
3379 <221> NAME/KEY: MISC\_FEATURE

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3380 <222> LOCATION: (381)..(381)  
3381 <223> OTHER INFORMATION: Xaa=Glu or Gly  
3383 <220> FEATURE:  
3384 <221> NAME/KEY: MISC\_FEATURE  
3385 <222> LOCATION: (385)..(385)  
3386 <223> OTHER INFORMATION: Xaa=Tyr, His, or Cys  
3388 <220> FEATURE:  
3389 <221> NAME/KEY: MISC\_FEATURE  
3390 <222> LOCATION: (387)..(387)  
3391 <223> OTHER INFORMATION: Xaa=Ile or Thr  
3393 <220> FEATURE:  
3394 <221> NAME/KEY: MISC\_FEATURE  
3395 <222> LOCATION: (393)..(393)  
3396 <223> OTHER INFORMATION: Xaa=Val or Ile  
3398 <220> FEATURE:  
3399 <221> NAME/KEY: MISC\_FEATURE  
3400 <222> LOCATION: (394)..(394)  
3401 <223> OTHER INFORMATION: Xaa=Leu or Pro  
3403 <220> FEATURE:  
3404 <221> NAME/KEY: MISC\_FEATURE  
3405 <222> LOCATION: (402)..(402)  
3406 <223> OTHER INFORMATION: Xaa=Arg or Lys  
3408 <220> FEATURE:  
3409 <221> NAME/KEY: MISC\_FEATURE  
3410 <222> LOCATION: (404)..(404)  
3411 <223> OTHER INFORMATION: Xaa=Ser or Pro  
3413 <220> FEATURE:  
3414 <221> NAME/KEY: MISC\_FEATURE  
3415 <222> LOCATION: (413)..(413)  
3416 <223> OTHER INFORMATION: Xaa=Ser or Phe  
3418 <220> FEATURE:  
3419 <221> NAME/KEY: MISC\_FEATURE  
3420 <222> LOCATION: (422)..(422)  
3421 <223> OTHER INFORMATION: Xaa=Glu or Gly  
3423 <220> FEATURE:  
3424 <221> NAME/KEY: MISC\_FEATURE  
3425 <222> LOCATION: (428)..(428)  
3426 <223> OTHER INFORMATION: Xaa=Gly or Arg  
3428 <220> FEATURE:  
3429 <221> NAME/KEY: MISC\_FEATURE  
3430 <222> LOCATION: (429)..(429)  
3431 <223> OTHER INFORMATION: Xaa=Pro or Leu  
3433 <220> FEATURE:  
3434 <221> NAME/KEY: MISC\_FEATURE  
3435 <222> LOCATION: (435)..(435)  
3436 <223> OTHER INFORMATION: Xaa=Gln or Arg  
3438 <220> FEATURE:  
3439 <221> NAME/KEY: MISC\_FEATURE  
3440 <222> LOCATION: (447)..(447)

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3441 <223> OTHER INFORMATION: Xaa=Arg or Gly  
 3443 <220> FEATURE:  
 3444 <221> NAME/KEY: MISC\_FEATURE  
 3445 <222> LOCATION: (453)...(453)  
 3446 <223> OTHER INFORMATION: Xaa=Asn, Ser, or Ile  
 3448 <220> FEATURE:  
 3449 <221> NAME/KEY: MISC\_FEATURE  
 3450 <222> LOCATION: (459)...(459)  
 3451 <223> OTHER INFORMATION: Xaa=Met or Thr  
 3453 <220> FEATURE:  
 3454 <221> NAME/KEY: MISC\_FEATURE  
 3455 <222> LOCATION: (485)...(485)  
 3456 <223> OTHER INFORMATION: Xaa=Asp or Gly  
 3458 <400> SEQUENCE: 66  
 W--> 3460 Met Leu Leu Glu Leu Ala Leu Gly Leu Xaa Val Leu Ala Leu Phe Xaa  
 3461 1 5 10 15  
 3463 His Leu Arg Pro Thr Pro Xaa Ala Xaa Ser Lys Ala Leu Arg His Leu  
 3464 20 25 30  
 3466 Pro Asn Pro Pro Ser Pro Xaa Pro Arg Leu Pro Phe Ile Gly His Xaa  
 3467 35 40 45  
 3469 His Leu Leu Lys Asp Lys Leu Leu His Tyr Ala Xaa Ile Asp Leu Ser  
 3470 50 55 60  
 3472 Lys Lys His Gly Pro Leu Phe Ser Xaa Xaa Phe Gly Ser Met Pro Thr  
 3473 65 70 75 80  
 3475 Val Val Ala Ser Thr Pro Glu Leu Phe Lys Leu Phe Leu Gln Xaa Xaa  
 3476 85 90 95  
 3478 Glu Ala Thr Ser Phe Xaa Thr Arg Phe Gln Thr Ser Ala Xaa Arg Xaa  
 3479 100 105 110  
 3481 Leu Thr Tyr Asp Xaa Xaa Val Ala Xaa Xaa Pro Xaa Gly Pro Tyr Trp  
 3482 115 120 125  
 3484 Xaa Phe Val Arg Lys Leu Ile Met Asn Asp Leu Leu Asn Ala Thr Thr  
 3485 130 135 140  
 3487 Val Asn Xaa Leu Arg Pro Leu Arg Thr Gln Gln Ile Arg Lys Xaa Leu  
 3488 145 150 155 160  
 3490 Arg Xaa Met Ala Gln Xaa Ala Glu Ala Xaa Lys Pro Leu Asp Xaa Thr  
 3491 165 170 175  
 3493 Glu Glu Leu Leu Lys Trp Xaa Asn Ser Thr Xaa Ser Met Met Xaa Leu  
 3494 180 185 190  
 3496 Gly Glu Ala Glu Glu Ile Arg Asp Ile Ala Arg Glu Val Leu Lys Ile  
 3497 195 200 205  
 3499 Xaa Gly Glu Tyr Ser Leu Thr Asp Phe Ile Xaa Pro Leu Lys Xaa Leu  
 3500 210 215 220  
 3502 Lys Val Gly Lys Tyr Glu Lys Arg Ile Asp Asp Ile Leu Asn Lys Phe  
 3503 225 230 235 240  
 3505 Asp Pro Val Val Glu Arg Val Ile Lys Lys Arg Arg Xaa Ile Val Arg  
 3506 245 250 255  
 3508 Arg Arg Xaa Asn Gly Glu Xaa Xaa Glu Gly Glu Xaa Ser Gly Val Xaa  
 3509 260 265 270  
 3511 Leu Asp Thr Leu Leu Glu Phe Ala Glu Asp Glu Thr Xaa Glu Ile Lys

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3512	275	280	285	
3514	Ile Thr Lys Xaa Xaa Xaa Lys Gly Leu Val Val Asp Xaa Phe Ser Ala			
3515	290	295	300	
3517	Gly Xaa Asp Ser Thr Ala Xaa Xaa Thr Glu Trp Ala Leu Ala Glu Leu			
3518	305	310	315	320
3520	Ile Asn Asn Pro Xaa Val Leu Xaa Xaa Ala Arg Glu Glu Xaa Tyr Ser			
3521	325	330	335	
3523	Val Val Gly Lys Asp Xaa Leu Val Asp Glu Val Asp Thr Gln Asn Leu			
3524	340	345	350	
3526	Pro Tyr Ile Arg Ala Ile Val Lys Glu Thr Phe Arg Met His Pro Pro			
3527	355	360	365	
3529	Leu Pro Val Val Lys Arg Lys Cys Xaa Glu Glu Cys Xaa Ile Asn Gly			
3530	370	375	380	
3532	Xaa Val Xaa Pro Glu Gly Ala Leu Xaa Xaa Phe Asn Val Trp Gln Val			
3533	385	390	395	400
3535	Gly Xaa Asp Xaa Lys Tyr Trp Asp Arg Pro Ser Glu Xaa Arg Pro Glu			
3536	405	410	415	
3538	Arg Phe Leu Glu Thr Xaa Ala Glu Gly Glu Ala Xaa Xaa Leu Asp Leu			
3539	420	425	430	
3541	Arg Gly Xaa His Phe Gln Leu Leu Pro Phe Gly Ser Gly Arg Xaa Met			
3542	435	440	445	
3544	Cys Pro Gly Val Xaa Leu Ala Thr Ser Gly Xaa Ala Thr Leu Leu Ala			
3545	450	455	460	
3547	Ser Leu Ile Gln Cys Phe Asp Leu Gln Val Leu Gly Pro Gln Gly Gln			
3548	465	470	475	480
3550	Ile Leu Lys Gly Xaa Asp Ala Lys Val Ser Met Glu Glu Arg Ala Gly			
3551	485	490	495	
3553	Leu Thr Val Pro Arg Ala His Ser Leu Val Cys Val Pro Leu Ala Arg			
3554	500	505	510	
3556	Ile Gly Val Ala Ser Lys Leu Leu Ser			
3557	515	520		
E--> 3560	59			

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L:14 M:271 C: Current Filing Date differs, Replaced Current Filing Date  
L:3460 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:66 after pos.:0  
M:341 Repeated in SeqNo=66  
L:3560 M:332 E: (32) Invalid/Missing Amino Acid Numbering, SEQ ID:66